

Management and Re-Use of Soil

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Why Re-Use Soil?

1. Operation of landfills requires daily cover, typically soil or some approved alternative material, to prevent odors, wind-blown trash, etc.
2. Closure of landfills requires grading & shaping material, typically soil or some other approved alternative material, to achieve final, stable shape.
3. Capping landfills requires final layer suitable for grass growth, typically (exclusively?) soil.



Why Re-Use Soil?

When the landfill is closed...

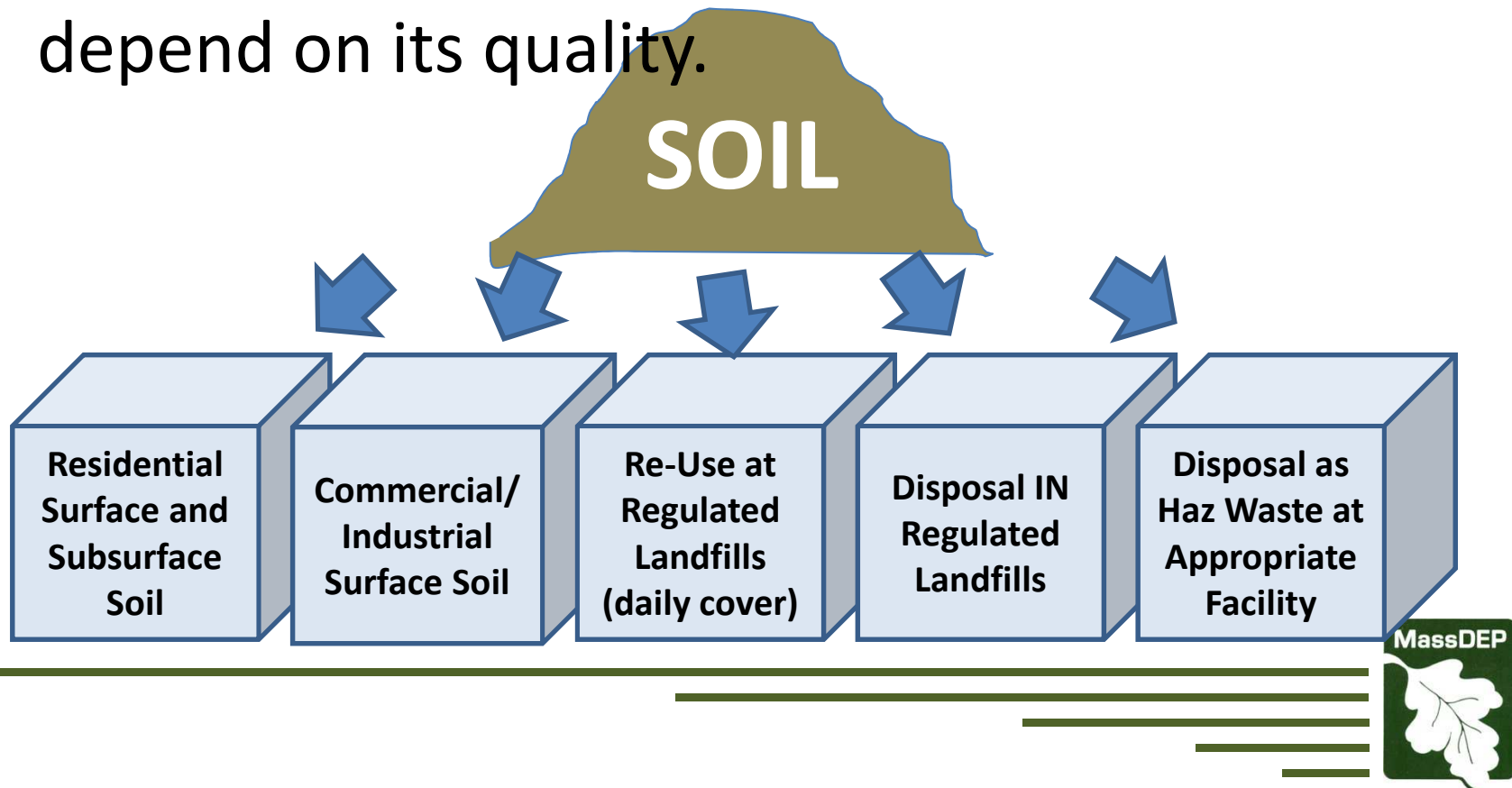
- the material used for daily cover (#1) and for grading/shaping (#2) will be under the cap. No further exposure to it is likely.
- The material used for the final layer may have ongoing contact/exposure.

Thus what is allowable depends on how it will be used. Different criteria may apply.



Why Re-Use Soil?

- MassDEP seeks to recycle/re-use or dispose of material – including soil – and that will depend on its quality.



Purpose of COMM-97-001

- Identify nature of soil that would be appropriate to re-use as daily cover or grading/shaping material at landfills.
- What's "appropriate"?
Soil would not pose a significant risk to landfill workers or adjacent residents.



COMM-97 Criteria

CONTAMINANT	Reuse Levels (mg/kg) ^a	
	Lined Landfills	Unlined Landfill
Total Arsenic	40	40
Total Cadmium	80	30
Total Chromium	1,000	1,000
Total Lead	2,000	1,000
Total Mercury	10	10
Total Petroleum Hydrocarbons (TPH)	5,000	2,500
Total PCBs ^b	< 2	< 2
Total SVOCs ^c	100	100
Total VOCs ^d	10	4
Conductivity ^e (umhos/cm)	8,000 umhos/cm	4,000 umhos/cm
Listed or Characteristic Hazardous Waste (TCLP) ^f	NONE	NONE



Exposure Assumptions

- 7 year, chronic exposure
- Receptor:
 - 1-2 year old child (non-cancer risk calculation)
 - 1-8 year old child (cancer risk calculation)
- Inhalation of dirt as fugitive dust at fenceline
 - Dust always at PM₁₀ standard
- “Allowable Risk” set at *de minimis* levels:
 - One-in-one million cancer risk
 - 20% of non-cancer toxicity criteria



Summary

The COMM-97 criteria are set to allow for the efficient re-use of soil in the landfill operation and closure process while protecting any residents who live nearby.

These criteria have been in place and effectively used statewide since 1997.

